

ALTERATION AND METASOMATIC PATH IN SOUTHERN PART OF THE ZARIGAN GRANITIC PLUTON, CENTRAL IRAN.

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The Zarigan pluton, a meta-aluminous granite of Precambrian age, is located in Bafq metallogenic province, Central Iran. Mineralogically, this pluton is composed of K-feldspar, plagioclase and quartz with accessory zircon, allanite and tourmaline. Evidence such as cataclastic textures in minerals e.g. quartz and K-feldspars, chessboard texture and albite veinlets in plagioclase attest to effects of several tectonic phases and consequent metasomatic reaction. Chemical index of alteration for Zarigan intrusion shows the primary stage of weathering; and A-CN-K diagram as well as $K_2O/(K_2O+Na_2O)$ versus CaO and %K versus %Na plots illustrate the effects of sodic metasomatism. Decrease in Zr and Nb with parallel increase in SiO_2 is remarkable and evolution path for meta-aluminous Zarigan granite is clearly consistent with that of calc-alkaline trondhjemite series. Volcanic arc is the setting which is suggested by distribution of some selected trace elements (Y, Nb, and Rb). Low H_2O pressure is implied by hypersolvus texture and absence of aqueous minerals such as biotite for this granite. Temperatures between 720-760°C are estimated for the formation of Zarigan granite in 2Kbar water pressure.